

1809—The Year

of Genius—1809

# Darwin's Centenary

Part First—The Nineteenth Century Newton—Unpromising in His Youth—His Early Interest in Science...

By Oliver Leigh

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HE CARED ONLY FOR SHOOTING.

THE name of Luther marks the fierce ecclesiastical convulsion of the sixteenth century. That of Isaac Newton recalls the no less momentous reformation in the peaceful field of thought caused by his discovery of the law of gravitation. So in his chosen department of knowledge has Darwin given distinction to the nineteenth century by his demonstration that man is not a special creation, but a development from the humblest form of life. This much we all know of the man and his mighty influence; also that "Darwinism" as it came to be called as a convenient cover for our general inability to give a concise definition, stirred the religious world as profoundly as when under Luther's sway.

In Darwin's case happily the man is more interesting than his ism to us who dwell below the clouds, for scientific subjects float themselves up among the moonbeams as a halfway house until they reach the sunlight of demonstration. Even at this very hour there are indications that Darwin's own strongest convictions are likely to be modified in one direction.



CHARLES ROBERT DARWIN.

[Born Feb. 12, 1809; Died April 19, 1882.]

and this we gather from no less authoritative source than his son, Dr. Francis Darwin, whose address as president of the British Association for the Advancement of Science at Dublin last October arrested universal attention by its bold dictum that plants have eyes and see. Dr. Darwin was his father's associate in all his patient botanical investigations, and our portrait of the apostle of evolution will be drawn from his interesting memoir.

Charles Darwin himself expressed his painful surprise that orthodox should have flown into so wild a fury over his very simple, very fascinating and reasonable theory that our wonderfully complete organization started from the lowest living organism and has been perfected by slow processes of adaptation and variation called for by the struggle for existence. Those that developed their powers were the strong ones and reproduced their kind to develop superior powers in their turn. Those less able to adapt their organs to the necessity of finding food were the weak ones, whose race and generative power perished. We cannot help but see this identical process at work all around us today, and it does not disturb the faiths of the multitude. Yet even Leibnitz, as Darwin reminds us, clear headed philosopher that he was, attacked "the greatest discovery ever made by man, Newton's law of the attraction of gravity," on the ground that it was subversive of religion. Today the law of evolution demonstrated by Darwin (and discovered for himself by Alfred Russel Wallace independ-

ently, to whom reference is made in what follows) is accepted in substance by the scientific world. A celebrated author and divine (unnamed) had the courage to write to Darwin when his great book, "The Origin of Species," first inflamed the churchmen: "I have gradually learnt to see that it is just as noble a conception of the Deity to believe that he created a few original forms capable of self development into other and needful forms as to believe that he required a fresh act of creation to supply the voids caused by the action of his laws."

Great minds of every school unite in doing homage to Darwin as a "great man." For the encouragement of ambitious boys and youths, their parents and friends, we now use Darwin as an object lesson, which if rightly pondered will prove of greater practical value in life than the usual tales about "genius," which often spoil excellent budding brains. Here we have the self revealed portraiture of an actually "average man" who somehow in the Darwinian way developed into a "great man." It is only fair to admit that his good luck in not having to work for his daily bread gave Darwin the full chance to put his "average abilities" to the best use. He frankly acknowledges this immense advantage.

His good angel, if such rarities occur in the evolution of celestials, also favored him with a distinguished grandfather and a father described by Darwin as "the wisest man I ever knew," though only a country doctor, of ample private fortune, who lived from 1766 until 1848. Erasmus Darwin, the grandfather, was a physician, a naturalist and a poetizer of plant life. His writings had great fame in

the time he wrote it. He was only so-so as a schoolboy. "I left school rather below the common standard in intellect." His "wisest" father seems to have despised of the growing youth. It staggered him when his parent told him flatly, "You care for nothing but shooting dogs and rat catching, and you will be a disgrace to yourself and all your family."

However humane (and the rats may rise against him on the judgment day on this), Darwin always dwells lovingly on his mighty shooting exploits. No wonder that in after life "I wholly lost all pleasure from poetry of any kind." Shakespeare was impossible. He had read his grandfather's work on natural history, "Zoonomia," in his early years—twice, which one would suppose must have inspired his own work, but it left "no effect," nor on being read again fifteen years later.

First he would follow his father and be a doctor. A year or two at the schools sickened him, and the dissecting table gave him the horrors. Then he dabbled in geology, but soon decided that of all odious professions the worst was that of a geologist. As a lad he developed a craze for collecting letter franks, seals, coins, minerals, anything, and no one but himself was interested. He would take long solitary walks. Then he took a fancy for beetles and developed an enthusiasm for catching them. He tells how on stripping a bit of bark from a tree he spied two uncommon specimens. These he secured, one in each hand, when out popped an entirely new kind of beetle. In his eagerness not to lose it he put one of the others in his mouth while he grabbed the third, but the prisoner gave him a dose of a fluid so acrid and nauseous that he had to let him go. Another lesson in humanness.

So successful was Darwin in forgetting everything he had learned but the humane act of shooting that when he decided to enter Cambridge in 1827 he had to engage a private tutor to teach him his Greek alphabet over again and rub up the classics on which he had spent two industrious years. Why enter Cambridge? Because some one had the happy thought that Darwin would, at any rate, make a passably good Church of England parson, and he thought so too. It is a humane profession. All the good he got from all his studies which were helpful throughout his life he credits to Euclid and Paley's "Evidences of Christianity." Before he had blossomed into a surprised deacon Darwin fell under the fascination of science.

Professor Henslow, the great botanist, honored Darwin with unwonted friendship. Darwin was dubbed by his fellow students, "The man who walks with Henslow," a genial suggestion that his reverence bordered on worship. He says somewhere that Henslow's friendship had the greatest influence on his life. The right man at the right period in one's history can do more for us than all the schools and preachers and libraries. Henslow implanted a living interest in the despised geology, botany and other such studies. Under Sidgwick, the great geologist, Darwin developed unsuspected powers. Yet—"How I did enjoy shooting!" On one of his visits to the family home in the old town of Shrewsbury he found new interest in looking at the familiar big bowlder known as the bell stone. The local wise man had long had but one answer to questions as to how it had got there, "Ah, the world will come to an end before any one will know the secret!" Now that Darwin had learned how the sliding of the vast primeval glaciers had transported these mysterious bowlders across Wales and left them in his town he felt repaid for his pains. "I gloried in the progress of geology."

"Looking back," he writes, "I infer that there must have been something in me a little superior to the common run of youth," or these and other distinguished men would not have allowed him to associate with them so intimately. The privilege had its penalties. He had his little humiliations. One day he happened to find a shell in a spot where he thought no shell should be. He rushed with it to Sidgwick, expecting fine compliments. To his surprise, the great geologist did not think it the prize he had supposed. "Nothing before," says Darwin, "had ever made me thoroughly realize, though I had read the scientific books, that science consists in grouping facts so that general laws or conclusions can be drawn from them."

Here we have the open secret of Darwin's greatness.

He was now started on his life work, the patient, exhaustive, merciless task of overhauling all that was written about the facts of nature, of classifying it for his special purpose, of accumulating more facts from every source and then slowly building up a structure of verifiable theory on the mystery of what we call creation. Darwin's career comes near to justifying the worthless sneer that genius is the art of taking pains. His greatness shows in the Herculean labor of those twenty invalid years between the conception and completion of "The Origin of Species." His genius glows in the interpretation of his labors.



"THE WORLD WILL COME TO AN END."

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Part Second—His Epoch Making Voyage in the Beagle—"The Origin of Species"—Darwin at Home

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"THE BEAGLE"

THROUGH Henslow Darwin was honored with an invitation to join the government expedition being planned to sail on H. M. S. Beagle as naturalist. It was to circle the globe in three or four years on scientific researches, and there was to be no salary. Darwin would share the captain's quarters and the ship's fare. On this peg hangs a fact of great significance, but not generally known. If the total could be calculated of all the spoils of learning acquired, digested and given to the world by Great Britain during past centuries, we would be astounded to discover what a large proportion of all the arts, sciences and general scholarship has been freely contributed by rich and titled men and their sons who have devoted their talents and wealth to the promotion of their country's glory in this direction, as others have in naval and military service, in colonization and statesmanship.

After declining, on his father's advice, Darwin changed his mind and won Henslow's ardent applause. His father gave in after arriving at the conclusion that the voyage need not necessarily "be injurious to his character" if on his return he entered the church. The Beagle sailed on Dec. 27, 1831, a brig of 235 tons and ten guns. Darwin had long been anxious to see for himself the indescribable glories of the South American forests. The collections he made were to be his own property. "The voyage was by far the most important event of my life and determined my whole career."

He returned in October, 1836, and married his cousin in 1839. That same year he published his "Journal of Researches During a Voyage Round the World," which won him honors. The long spell of sea life, from which he suffered, impaired his health, so that in 1842 he withdrew to the retirement of the country house at Down, not far from London, in which he remained a recluse until his death.

It was curious that he all but lost the opportunity of his life because of the shape of his nose. Captain (afterward Admiral) Fitzroy, whose barometrical improvements have been adopted, had the choosing of the naturalist and decided that the owner of so inartistic a nose must be deficient in energy and determination. Darwin only remarks that Fitzroy soon learned that "my nose had spoken falsely."

Henslow considered that Darwin's letters to him more than justified the fine things he had said about the young man to the government, so he had them privately printed and distributed among scientists. This doubtless made Darwin famous in quarters where ordinarily genius has to knock long before it can enter.

It is not necessary here to give the titles of the five important books that followed the "Journal," each teeming with fresh facts and weighty reasonings that stirred the scientific world. He covered an immense field and with an authority that seemed the summary of a long life work on each distinct subject. In 1859 appeared "The Origin of Species," the book that turned the world upside down in its way. While it was accepted and will always rank as a work of original investigation and philosophy, Darwin's opening pages are devoted to honoring the pioneers in the line of thought which he has made his own.

He names Buffon, Lamarck, Saint-Hilaire, W. C. Wells, Rev. W. Herbert, Dean of Manchester cathedral; Professor Grant of Edinburgh, Professor Haldeman and others as having foreshadowed the theory which he was first to demonstrate. This and many other features which cannot be noticed now exemplify the simplicity and loftiness of Darwin's mind, his humility and modesty.

This fine magnanimity was shown by Darwin and Alfred Russel Wallace in equal degree in the remarkable incident which we now relate. Darwin opens his introduction to "The Origin of Species" with the statement here condensed: "On my return in 1837 from the Beagle voyage it occurred to me that something might perhaps be made out on this question, the origin of species, the mystery of mysteries, as one of our greatest philosophers had called it. After five years' work (on his Beagle facts) I allowed myself to speculate on the subject and drew up some short notes. These I enlarged in 1844 into a sketch of the conclusions which then seemed to me probable. . . . My work is now (1859) nearly finished; but, as it will take me many more years to complete it and as my health is far from strong, I have been urged to publish this abstract, more especially as Mr. Wallace has arrived at almost exactly the same general conclusions that I have on the origin

of species. In 1858 he sent me a memoir on this subject."

This is a mild telling of how, after you have been pegging away for nearly twenty years at working out a great idea, a stranger pops up and shows the world that he has got ahead of you, and in lightning speed too.

The Linnean society of London met on July 1, 1858, to celebrate the fiftieth anniversary of the joint communication by Charles Darwin and Alfred Russel Wallace "On the Tendency of Species to Form Varieties and on the Perpetuation of Varieties and Species by Natural Means of Selection." Dr. Wallace was present and made an address. Referring to the undue credit that had been given him as simultaneous if not the first discoverer of the theory, he wished again to state the facts clearly and finally. The idea of "natural selection," or "survival of the fittest," occurred to both Darwin and himself independently. But what is often forgotten is that it occurred to Darwin in 1838,



HE TOOK A WALK THROUGH THE GROUNDS, RAIN OR SHINE.

and during most of those years Darwin had been laboriously collecting evidence and carrying out ingenious experiments and original observations. As far back as 1844 Darwin had sent an outline of his views to his friends Lyell and Hooker, who strongly urged him to publish it at once lest some one should forestall him, but he always refused till he had got all his materials together for his great work.

Then came the fulfillment of his prediction when he (Wallace) sent his essay, which fell on Darwin like a thunderbolt. How different Darwin's long preparation and caution to his own (Wallace's) conduct! "The idea came to me, as it did to Darwin, in a sudden flash of insight. I wrote it out, developed it, then copied it on letter paper and sent it to Darwin, all in one week. I was the young man in a hurry; Darwin was the painstaking and patient student." Dr. Wallace then showed how they had worked on parallel lines, from beetle collecting, through foreign travel in search of truth, and, singularly, their final stage was Malthus' "Principles of Population." Sir Charles Lyell and Dr. Hooker decided that the proper course was to couple an early memoir on the subject by Darwin with Wallace's just received memoir, and so they were read together at the Linnean society's July meeting in 1858.

Forty years Darwin lived a hermit life amid his family, secluded from the outer world. In the first year or two they went a little into society and received a few friends, but even that mild excitement prevented sleep and induced violent vomiting. So most of those forty years were lived in the home circle, and the visits of intimate and valued friends, like Huxley and distinguished men of science, were performed very rarely. It was an ideally happy home. His only absences were when overwork drove him for a few days' rest to the seaside or to the London homes of a son and a daughter. He spent years over each of his books, large or small. All were great. This was the routine of his average day: He rose early summer and winter, took a short walk before breakfast, in winter at daybreak; then breakfasted alone at quarter to 8 and worked over his plants, insects, microscope and rough notes until half past 9—he called these hours his best time; then to the common room, where he would view the pile of letters for him and rejoice when it was small. Every one was answered. They were read to him as he lay on the sofa. At half past 10 he listened to a chapter of a novel. The kind he liked were those of ordinary life told with ordinary skill. For heroine he preferred a pretty woman, and he said a law ought to put down novels with unhappy endings.

After this recreation he would go and work till a quarter past 12, when he

took a walk through his grounds, rain or shine, with his white terrier, Polly. He was six feet tall, had a swinging walk, and the ring of his iron shod walking stick was cheery. While dictating in his workroom he would skip occasionally across the hall for a pinch out of the snuffbox he kept there to lead him not into the temptation it would be nearer at hand. Though a confirmed invalid, he was ruddy cheeked. His blue gray eyes hid themselves in the recesses of the deep overhanging brow fringed with thick projecting eyebrows. He talked vivaciously, laughed loudly and was free in gesticulating, but had to move slowly and clumsily around the house because of frequent giddiness.

He was forbidden to eat sweet things and often vowed he would not, then broke his vow. Wine he enjoyed and was bettered by it, but he took very little. When walking he observed all the birds, animals, beetles, flowers, with the double interest of a child and a scientist. Inspecting some seedlings with which he was experimenting, he flew into a mock passion with them—"the little beggars are doing just what I don't want them to do!" At 3 o'clock he rested in his bedroom on a sofa, smoking a cigarette and listening to more light reading. If he dozed Mrs. Darwin would continue reading lest her silence would wake him. From 4 to half past 5 he was in his workroom, after which he would rest and smoke. In the later years he had a plain tea, with an egg or piece of meat, instead of dinner, and would take leave of the diners, saying, if visitors were there, "I am an old woman now and must leave with the ladies." He always wore a shawl indoors and had lined cloth boots to slip over his indoor shoes for a walk. When intent on something in his work he would pull off his coat, though very subject to chills. He played two games of backgammon with his wife after dinner with great gusto.

Often he lamented that the nature and long continuance of his labors had turned his mind into a machine for grinding general laws out of endless collections of facts. The minutest detail was as important as a large view. Each book was a final abstract of numerous earlier abstracts. He always had several distinct subjects in hand at the same time, which he systematized his own way in about forty large portfolios. He made a rule of jotting down a thought on the instant and placing it where it belonged. This indicates his methodical habit and his slow and sure way of working.

Even ill health had its compensation. "Though it has annihilated several years of my life it has saved me from the distractions of society and its amusements." He laughed at the high flown talk of artists as if art were something sacred. His library, for use, not show, and his work was on seven days to the week. The village parson was an almost daily visitor, but Darwin could not return his calls in church. When he ventured there in 1871 on the occasion of his daughter's wedding he was overcome with the exertion and strain. He gladly served as treasurer of the church and village benefit societies. With all around him, and especially with the servants, he was kind and considerate. It was always, "Would you be so good as to do this or that." He died April 19, 1882, and was buried in Westminster abbey, Dr. Wallace being the chief pallbearer.

The non-scientist reader will find many fascinating pages in some of Darwin's apparently his always were a driest works. He is not a stylist—in fact, he bewails the difficulty he always had in hitting on the best expression of what he had to say. He succeeds in being clear and impressive. In his "Descent of Man and Variation in Relation to Sex," the "Expression of the Emotions in Man and Animals" and the "Insectivorous Plants" there is a wealth of strange material which it would be well for the dissipated novel reader to share between his and her fiction spasms.

A hundred years ago this epoch marking man of science was born, and fifty years ago his book saw the light. Some of Darwin's contemporaries whose centenaries are to be celebrated or remembered were born with a gold spoonful of what is called genius in their brain pans. The child in their case was father to the man, the halo adorned their heads from the cradle, according to the fond memories of the nursery. The average lad is a bit disheartened at finding his fingers are not scorched as they timidly grope where the ring of glory should be. Let him read the history of the humble Darwin's body and mind as he grew from boy to youth and on to youth to manhood. It will be a surer tonic than any that comes in bottles. Here is an unpromising boy, a solitary, an ungainly form, a dull brain, sees no good in schooling, forgets all it taught him, takes his own unpromising course and so drifts along till the lucky hour comes that flashes into activity the dormant quality that lurks in every one of us, but too often dies for want of the magic touch of opportunity. Darwin's tomb in Westminster abbey is the rightful due of a rarely great life of toil in pain, a workman whose motto was, "I'll do as I can."



HE ALWAYS WORE A SHAWL INDOORS.